Steering Committee Strategy Discussion Meeting Summary

Wednesday, June 7, 2017 2:00 – 5:00 p.m.
Navajo Department of Transportation, Conference Room 308/309
#16 Old Coalmine Road, Mentmore, NM

Overall Outcomes for this meeting:

1) Help us prepare for senior level meetings
2) Have an opportunity to identify and fully understand key stakeholder and common interests of the remedy alternatives for mine waste in the State of New Mexico and on the Navajo reservation.

Representatives from the following agencies attended the meeting:

- Navajo Nation Environmental Protection Agency (NNEPA)
- Navajo Nation Abandoned Mine Lands (NNAML)
- Navajo Nation Department of Justice (NNDOJ)
- New Mexico Environment Department (NMED)
- New Mexico Mining and Minerals Division (NMMMD)
- U.S. Environmental Protection Agency Regions 6 and 9 (U.S. EPA)

Participants: see Attachment 1: June 7, 2017 Steering Committee Strategy Discussion Sign-In Sheet [1] (p. 9)

Summary

Approximately 22 people gathered on June 7, 2017 in Window Rock for the Steering Committee Strategy Discussion. The focus was on presenting an overview of remedy alternatives and coming to agreement on the purpose, topics, invitation, date, location, attendees, and duration of the Senior Level Steering Committee Meeting.

Action Items Identified During the Meeting

There were no action items identified.

Opening – Lori Lewis (Facilitator)

Lori Lewis welcomed meeting participants to the Tronox meeting and explained that today's meeting is not going to focus on updates, but rather, a path forward, including brainstorming a long-term planning strategy. She emphasized that no decisions are being made today; instead, it is the laying out of a strategy. She then invited each organization to provide opening statements.

Review Agenda/Logistics

- Lori Lewis (Facilitator) quickly reviewed the agenda for the meeting.

[1] See Attachment 1 to this document.

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Welcome/Set Context

- Ben Banipal (USEPA Region 6) thanked participants for the fruitful Tronox Stakeholders meeting that morning and emphasized how helpful it was. He explained that this meeting is really a continuation of that meeting. He would like to see open and candid feedback from each stakeholder that will help us reach decisions.
- Will Duncan said, "Let's get started!"
- Lori Lewis (Facilitator) went over the overall 7 common interests/criteria derived from the Tronox NAUM Stakeholders Meeting earlier in the morning:
    1. Protect human health and the environment
    2. Cost Effective
    3. Legal (federal, state, tribal, etc.)
    4. Adheres to Tronox settlement
    5. Long-term safety (e.g., Operation and Maintenance) is possible
    6. Can gain upper management and/or Uranium Commission (advisory body) approval
    7. Technically achievable and implementable
- Lori also went over the other considerations (how, etc.) participants from the Tronox NAUM Stakeholders Meeting had identified, including:
    1. Take advantage of past experience
    2. Ensures community, etc. input and education
    3. Uses risk-based approach
    4. Takes into consideration responsible party (RP) interests and concerns

Overview of Remedy Alternatives –Kevin Shade (USEPA Region 6) and Mark Ripperda (USEPA Region 9)

Kevin and Mark provided an overview of all of the possible remedy alternatives. Kevin emphasized that this is not an exhaustive list. Nor does it reflect EPA's opinion on the appropriateness of any option at abandoned uranium mines (AUMs).

- Please see PowerPoint slide file for presentation details— **AUM_Disposal Options_DraftFinal.pptx**.

Review Possible Remedy Alternatives from Perspective of Discussion on Interests and Criteria –Lori Lewis (Facilitator)

Lori led the participants in a collaborative discussion of each of the possible remedy alternatives and helped them identify how many of the group's common interests/criteria were met by each of the remedy alternatives. Please refer to the numbering system outlined in the Opening section when reading the notes below.

#1: No Action

- The only common interests/criteria this option meets is (2).
- Does not meet the remaining criteria.

#2: Institutional Controls – deed restrictions or security measures. Access control only. No remedial actions taken.

- Meets (2).
- Could partially meet (1). May protect human health but not environment due to groundwater

- May not meet (3)
- Institutional Controls contradicts Navajo Nation Law/Navajo Fundamental Law.

#3: Vegetative Extraction (Phytoremediation) – use of plants to absorb radionuclides and other contaminants (e.g., hemp and switchgrass). Harvest the crop once to twice a year and test it to see its contamination level. Keep doing it until enough contaminants have been extracted such that it meets the risk.

- USDOE has a plot out in Monument Valley they have maintained for many years for those that want more information.
- Does not meet state requirements (3) in the State of NM as it cannot be self-sustaining; however, it could be an interim action.
- Depending on whether hemp is used or not, there could be legal issues (even when using the non-THC hemp) (3)
- There are questions as to whether it is technically feasible (7), in which case, it might not meet (1).
- Might not meet (1) due to water quality
- Depending on disposal costs, it may not be cost effective (2)
- There are O&M considerations (5)
- There might be community concerns (risk base approach)

#4: Backfilling Mine Shafts Using Waste: there are two types of mines, wet and dry. Backfilling into a wet mine is not a viable option for many reasons, but with dry mines, especially those with vertical shafts, the mine waste can be put back into the shaft where it came from. The biggest issue is economy of scale (can be done in conjunction with closure of vent holes or shafts or adits).

- There are a lot of questions surrounding (7)
- At present time, it would not meet tribal requirements, both under Fundamental Law and the current executive position that any disposal of mine waste on tribal land is not permitted (3).
    - Could it work for Ambrosia Lake since it is not on Tribal land?
- Would not meet (6) for the Navajo President.
    - Madeline Roanhorse (NNAML) pointed out that even the Navajo President asked why the waste could not be put back in the mine shafts. In NNAML's reclamation plan, that is what we did in the past.
- Could be cost effective (2). But it might not be cost effective if there are possible long-term improvements necessary (5)
    - Freida White (NNEPA) does not believe that it is cost effective. No long-term studies have been completed. The Navajo Nation Uranium Commission (UC) will have to consider this.
- Harrison Karr (NNDOJ) explained that the Navajo Nation position on disposal of uranium mine waste is that no disposal should occur on Navajo lands. That is the current official position of the Navajo Nation. The Navajo Nation recognizes the obstacles that this position creates; that is why the UC was created. The UC is an advisory body that can recommend whether the Navajo Nation can allow disposal on Navajo lands in some way, shape or form.
- Dr. Benn (NNEPA) noted that the official and unofficial decision is no more mining of any kind. Changing that decision is weakening the system. He agrees with Harrison; let the UC determine the outcome of this question.
- Based on this discussion there is only one viable option that passes (3) and that is off-site disposal.

- It might meet (1) depending upon the type of mine (wet vs. dry)
- Harrison noted that there is no Navajo legislation prohibiting disposal of waste on Navajo land but there is an executive statement.
- It is possible that we could have a discussion with the President on a site-specific basis (if a site is ready). As Madeline said, some of the people in the community might approve, which would be a significant factor. But Navajo participants would like to see the UC have time to perform their job.
- Harrison reminded participants that the UC is an advisory body. They do not make decisions. They advise those that make the decisions (Navajo President and councilmembers).
- If uranium contamination is considered a source, how does it make sense to put it back? Need to remove it to make it clean. That is the perspective of a Navajo geologist.

#5: Capping of Contaminated Material in Place: may include some consolidation to make the cap area smaller and may or may not be a radon barrier. It would be a self-containing cap that is evapotranspirative and 3 feet deep, etc.

- May or may not be protective of human health and the environment depending on the design (1)
- It is site and detail dependent, but it might meet all of the criteria (1 – 7).
- It could be cost effective (2)
- The Navajo had similar concerns as with #4: Backfilling Mine Shafts Using Waste.
- There might be community concerns, especially if there was past work performed and the community was told that it was finished and completed in the past
    - Raised to community delegate (6)
- It is important to engage the community throughout the entire process. If this does not happen, the process could take several extra years. This was learned in Northeast Church Rock (NECR).
- Will Duncan (USEPA Region 9) expressed concern with the following instance: what if the Engineering Evaluation/Cost Analysis (EE/CA) is presented to the community and members prefer a particular option, but then it moves to the stakeholder committee and that community-preferred option does not pass all the criteria?

#6: Soil Washing: a technology that has been demonstrated for several years, primarily with oil, but it has migrated to metals. A mini floatation area is set up and chemicals are used to "wash" the material. The result is a slime layer where the contamination of interest has been concentrated. Finally, de-water it and dispose of it.

- Non-cost effective due to all the wastes generated and chemicals used and disposal costs at the end (2)
- There are problems/issues surrounding all 7 of the criteria
- There are some benefits to volume reduction. It is viable under the right circumstances. It is our responsibility to show the public that this group looked at and considered all possible alternatives for viability. The group also must demonstrate to the National Remedy Review Board (NRRB) that all options were considered.
- There was a discussion on the difference between remediation and reclamation

#7: Soil Sorting: demonstrated technology that is most effective on sites with ore piles intermixed with proto ore or native rock. Instead of having 10,000 cubic yards of material to dispose of at a high-level facility, soil sort using a system with a sorting belt that separates the material by radioactive activity. It sorts out native ore, etc. so that the high-level waste material that needs to be disposed of at a high-

level facility drops down to 1,000 cubic yards (i.e., volume reduction). There is also potential for cost reduction and reuse for the material.

- Participants had similar concerns regarding criteria as they did for #6: Soil Washing.
- Achieve a volume reduction that could be very beneficial without the chemical waste problem of soil washing
- Might be good option if a site has comingled material with obvious ability to sort the soil.

#8: Processing at a Uranium Mill: all the ore at the Tronox mines is too low in concentration to be processed at a uranium mill. Because of this there is a clause where the uranium can be disposed of at a licensed low-level nuclear waste facility.

- Meets (1) and (5)
- Not cost effective (2)
- Approved method by Navajo Nation (6)
- Transportation safety issue
    - Risk of accidents goes up as distance traveled goes up
    - Accidents could impact communities
- Might be legal Nuclear Regulatory Commission (NRC) issues (3)
- Could compliment soil sorting (could send reduced material for processing at a uranium mill)
    - But this could bring up legal issues regarding source material (3)

#9: Excavation and Disposal at a Former Uranium Mill: (e.g., UNC mill = closed mill). There are several closed mills in the Grants area.

- Similar concerns as #8: Processing at a Uranium Mill
- Site-specific; "former" might depend upon community (6) (e.g., Navajo Nation would be opposed to waste being put in Shiprock Mill)
- Problems with long-term liability would have to be addressed (5)

#10: Disposal at a Municipal Landfill

- Warren Zehner (USEPA Region 6) does not know of any municipal landfills that would take radioactive material
- If USEPA was to reach out to chapter houses, it would look for some guidance from NNDOJ and NNEPA.
    - Dr. Benn was asked how USEPA could do such outreach while acknowledging current policies (i.e., how can USEPA do this without appearing to "cross" Navajo Nation's interests)
    - Dr. Benn replied that Community Involvement Coordinators (CICs) should be sent out to the communities to run exercises presenting all the options for a site.
- There are no municipal landfills on Navajo lands. The municipal landfills adjacent to Navajo lands do not want to accept low level waste (7).
- For the State of NM, there are problems with (2), (3), (5) and (6).
    - Regardless of where CERCLA waste is sent, it has to meet the offsite rule. Many people do not want to do the paperwork at the municipal level.
    - In addition, trucking the waste is expensive (2).
    - Also, NM solid waste landfills are not permitted to accept low level waste (3).
    - Landfills might have long-term problems (5).
    - Finally, management approval would be site dependent (6).

#11: Off-Site Disposal at a Licensed Low-Level Radioactive Waste Facility: There are a few in Utah, and one outside of Denver. They are licensed to accept this type of material.

- Not cost effective (2). This is the alternative that generally produces the highest cost.
- May not get upper management approval (6).
- Dr. Benn noted that NNEPA is part of a tribal caucus concentrating on disposing of low-level waste at licensed waste facilities. NNDOE is pushing this.

#12: Excised or Non-Excised Onsite Repository: Excising is when a hole is excavated in the ground to a specified depth or geological formation. Non-excised is when material is consolidated in a pile on the surface. Both would have engineered caps with a minimum 3-foot thickness, evapotranspirative cover and viable vegetative cover that could support limited grazing. They are essentially the same; one is on the surface and one is excavated. Operations and management are the same for both.

- Freida supports the excised onsite repository but noted that there could be long-term issues regarding erosion prevention and monitoring (5).
    - Frieda also noted that it is site dependent (7) and that the ones experiencing problems are temporary repositories.
- Issue with disposal; does not meet NN fundamental law (6).
- NNAML has past experience doing these.
- Meets (1) if done correctly.
- State of NM's chosen method (non-excised) for mine waste.
- Will Duncan asked whether the RP is required to invest money in long term maintenance and care?
    - Yes. Erosion happens, it is inevitable. State of NM bonds it for 100 years.

#13: Excavation and Transportation to Central Regional Repository: a central repository used for multiple mines. It would be located on a mine that other mines could send their waste to. Have a group of mines that have the same RP that are located within a contiguous contamination boundary under CERCLA, then material can be brought within that boundary to a centralized repository.

- Freida asked for clarification regarding whether contiguous means adjacent to the mine?
    - Warren responded, "When you have contiguous contamination."
    - Kevin noted that there is a legal and policy discussion within HQ clarifying what Warren is saying, including what the distance is. We do not yet know (3).
- For the State of NM, in terms of Quivira, it is not contiguous to Ambrosia Lake. The State would not be in favor of a central repository due to having to haul the waste that distance. There is a community that the waste would be driven through day after day. But NM would possibly be in favor at other sites (site dependent) (6).
- Legal issues for NM if not permitted (6)
- Disposing waste in Navajo lands is against fundamental law (3) and (6). If the repository was not on Navajo lands, then maybe yes.

#14: Creation of a Licensed Repository

- Disposing waste in Navajo lands is against fundamental law (3) and (6).
- For the State of NM, there is a permitting issue bringing waste to another site (3), health and safety issues transporting material over distances (2) and through communities (1), as well as regulatory issues (3).
- Easier to regulate/monitor (5)
- Concerns:

- On-site reclamation and remediation are pretty effective at this point in time. Preferable in a lot of ways. Almost always more cost-effective to claim in place than put in a truck, burning diesel to haul off site, which could result in transportation accidents (1).

Kevin noted that participants should be mindful of providing flexibility in all of the alternatives presented because the RP may have a completely different take on the "best" alternative. USEPA does not by any means let the RP dictate the selected alternative, but RP preference is still a consideration.

Next Steps

- Chip Poalinelli (USEPA Region 9) will put all this information on a slide for each of the 14 alternatives so that it can easily be provided to the RPM and OSC. It will become the checklist of what USEPA has to present to the Navajo when we are proposing alternatives.

Executive Steering Level Committee Meeting Details and Next Steps – Will Duncan (USEPA Region 9) and Lori Lewis (Facilitator)

Lori helped facilitate participants to come to agreement on purpose, topics, invitation, date, location, attendees, and duration for the Senior Level Steering Committee Meeting.

Executive Steering Level Committee

- Will Duncan explained that the idea for the Executive Steering Level Committee comes from the example Kurt Vollbrecht (NMED) brought up. Although USEPA is still dealing with draft proposals, there was an alternative proposed that the State of NM was very concerned with. Regional Administrators and Secretaries were forced to become involved in a decision about one alternative. He explained that USEPA is trying to learn from this experience so it can be avoided in the future. He suggested elevating issues to the Superfund Division Director level first in the rare occasions when there is an impasse about an alternative.
- Kevin suggested that such an issue could go from a general stakeholder audience (e.g., the Tronox NAUM Stakeholders Group) to a management audience (e.g., participants in the room for this meeting) that could be referred to as the Tronox Stakeholder Management Team. If agreement cannot be reached at that middle manager level, then the issue moves up to the Executive Steering Committee.
  - Step 1: **Tronox NAUM Stakeholders Group** *(if no agreement, then move on to Step 2)*.
  - Step 2: **Tronox Stakeholder Management Team** *(if no agreement, then move on to Step 3)*.
  - Step 3: **Executive Steering Committee** *(comprised of USEPA Regions 6 and 9 Superfund Division Directors, NMMMD and NMED Division Directors, and the Navajo Nation President)*.
- **There was general agreement among participants in the room to adopt the 3-Step process outlined above.**

Closing – Lori Lewis (Facilitator)

Lori reviewed the action items and Bike Rack before asking participants to provide feedback on how the meeting went. Following the meeting evaluation, Lori asked participants for closing comments.

Bike Rack

- There were not items placed on the Bike Rack.

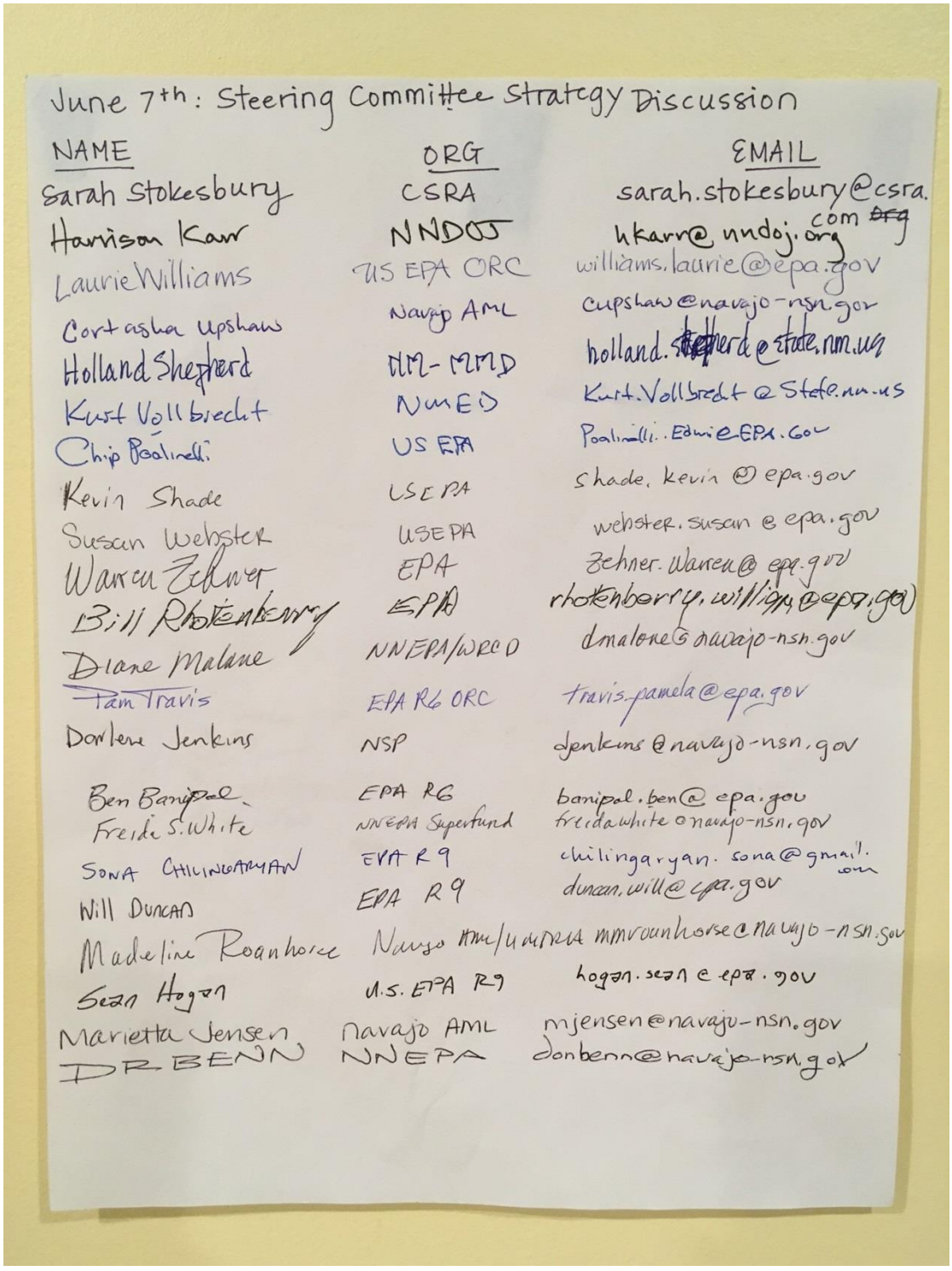
Next Meeting

- Participants identified the weeks of October 16th, October 23rd, and November 6th for the next Tronox meeting. **October 23rd appeared to be the best week for the most participants and a meeting room in Albuquerque was subsequently reserved.**

Location

- The following potential locations were identified and discussed:
    - **Albuquerque**
        - USEPA Region 9 participants identified Albuquerque as the best location if Monday meetings need to be held.
    - Phoenix
        - State of NM must stay only in NM
    - Santa Fe
        - State of NM invited participants to come to Santa Fe for the next meeting. They have ample meeting space.
        - Dr. Benn said he did not mind traveling to Santa Fe.
    - Window Rock
        - One Navajo participant said that having the meeting away from Window Rock might make it easier for Navajo participants not to be pulled in multiple directions.

Attachment 1: June 7, 2017 Steering Committee Strategy Discussion Sign-In Sheet



June 7th: Steering Committee Strategy Discussion

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